Comments on Marylands' Chesapeake Bay TMDL Watershed Implementation Plan

MDE and DNR are to be congratulated for such a comprehensive document. I am especially pleased that the approach now includes two-year milestones for implementation.

The Watershed Implementation Plan includes a large list of practices which can be used to meet the goals of the TMDL requirements for the Chesapeake, but does not prioritize the practices. If public input is to be used to develop the prioritization plan, more direction on cost effectiveness If cost effectiveness is used to help prioritize then there needs to be some understanding of who pays and how. I believe that agricultural practices need to be supported with public money. Stormwater retrofits should be paid for with a fee based upon impervious area. New stormwater management should be paid for the development industry.

A major concern for recreational users such as fishermen is that there is no target reduction for sediment in the TMDL for the Chesapeake Bay watershed. As I understand it the WIP assumes that phosphorous reductions will get the necessary sediment reductions. A detailed look at this assumption will show that although it may be valid for agricultural sources it is without basis for urbanized and urbanizing areas. Stream instability is a major source of sediment delivery to stream channels in these developed watersheds. Phosphorous reduction will most likely not be focused on this source of sediment.

A serious consequence of this omission will be the undervaluing of stream restoration as a strategy for restoration of the Chesapeake Bay watershed. Many small streams in the developed areas of Maryland suffer from significant instability and are major sediment sources. Since there is no specific target for reduction of sediment which can be a major and needed benefit of stream restoration there will be no incentive for this practice.

It seems that stream restoration is considered only for its ability to reduce nutrients and nutrient reduction is not well understood in streams. Work by Margaret Palmer and others is attempting to quantify nitrogen removal in the hyporheic zone of stream channels. This is one mechanism for nitrogen reduction in streams but not the only one. Nutrient processing by aquatic organisms in a healthy stream is a major factor which is not even considered much less estimated. The annual leaf and twig fall from riparian zones into stream systems is processed nearly quantitatively by macro and micro-invertebrates in healthy streams with diverse aquatic life. When streams become unstable and deliver excess sediment into their channels virtually all aquatic life can be eliminated, thus eliminating this form of nutrient processing. Under these conditions the allochthonous inputs to a stream system, rather that being incorporated into the food web, get transported downstream and taken up in anaerobic digestion. Thus, the secondary impact of an unstable stream channel is to increase nutrient delivery and cause additional problems such as increased biochemical oxygen demand and significant reductions of dissolved oxygen.

For these reasons it is important to have an understanding of the magnitude and impact of sediment from stream channel erosion. Without this understanding we are seriously underestimating the benefits of stream restoration. Research is needed to help quantify these impacts and thus the benefits of restoration. In the meantime I

recommend that preliminary estimates of the volume of eroded sediment from stream channels be an important factor to evaluate in considering stream restoration as a process for inclusion in the WIP. A standard amount of sediment reduction cannot be used as a basis for evaluating stream restoration benefits because the amount will vary with the amount of sediment being generated by the stream being restored.

Stream restoration in urban and urbanizing areas should be included as an important practice for restoring the bay watershed and it should be coupled with stormwater retrofits in the drainage area of the stream being restored. The combination of stormwater retrofits effort along with stream channel restoration will maximize the benefits of nutrient AND SEDIMENT REDUCTION.

Thank you for the opportunity to comment on the Phase I WIP. I look forward to a continuing dialog as the development of the Phase II WIP is developed.

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